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AUTHOR Deaudelin, Colette; Richer, Jeanne
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ABSTRACT

The purpose of the present study is to describe the use of a learning conversation approach integrating E-mail and to analyze the evolution of the learning conversation among students. This pedagogical strategy was aimed at supporting college students who attended regular lectures (n=57). Results show that it is possible to incite metacognitive changes and to maintain them at least over a term. Data analysis shows that students had exchanges at the metacognitive level by means of both E-mail and journals in which messages were more oriented toward the metacognitive level. (Contains 5 figures and 12 references.) (Author/SLD)

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The Use of a Learning Conversation Approach Integrating E-mail to Support the Student Learning Process at College Level

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Colette Deaudelin
Jeanne Richer

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The Use of a Learning Conversation Approach Integrating E-mail to Support the Student Learning Process at College Level[1]

Colette Deaudelin, professor
Jeanne Richer, doctorate student
Colette_Deaudelin@uqtr.uquebec.ca and jeanne.richer@sympatico.ca

Dep. des sciences de l'éducation
Université du Québec à Trois-Rivières
C.P. 500, Trois-Rivières, Québec, Canada, G9A 5H7

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Abstract

The purpose of the present study is to describe the use of a learning conversation approach integrating E-mail and to analyze the evolution of the learning conversation among students. This pedagogical strategy was aimed at supporting college students who attended regular lectures (n=57). Results show that it is possible to incite metacognitive exchanges and to maintain them at least over a term. Data analysis points out that students had exchanges at the Metacognitive level by means of both E-mail and journals, where messages were more oriented towards the Metacognitive level.

Problem

CMC experiences

Over the last decade, many experiments have been conducted on Computer-Mediated Communication (CMC). They consist of the use of CMC to deliver instruction, ranging from complete virtual campus to the mix of traditional lectures and CMC permitting exchanges between students and teachers (e.g. Hiltz, 1988). Some projects have developed learning environments including specific software and web sites (e.g. Scardamalia, Bereiter, Lamon, 1994). Other experiments have concentrated their pedagogical uses of IT on E-Mail. Actually, the latter represents the most widespread device employed in educational contexts. Now implemented in a majority of schools, colleges, and universities, this technology turns out to be

[1] This research was supported by a grant to the second author from Le Collège d'enseignement général et professionnel de Trois-Rivières.

the most accessible and affordable for students. For this reason, it is the focus of the present study.

Many authors have written about the pedagogical uses of E-mail (e.g. Poling, 1994; Wishnietsky, 1991; Zsiray, 1993). Among their writing, research is aimed at studying different variables. For example, Mabrito (1991) studied the difference between face-to-face and E-mailed evaluation according to the level of writing competence of students involved in this evaluation process. Black (1995) identified factors having an influence on the inter-university communication of students and teachers. William and Meredith (1995) investigated communication patterns among beginning computer users.

Despite the pertinence of those studies, in most cases, they do not provide information about the pedagogical approach used. Nor do they clearly distinguish teaching and support. So teachers interested in the development of strategies integrating E-mail can not take advantage of those experiments.

Pedagogical strategies

What is the most appropriate pedagogical approach in the context of CMC, and more specifically E-mail? Two groups of characteristics must be considered: the specific characteristics of the approach and those of the E-mail.

On the one hand, a review of pedagogical approaches shows that the majority put emphasis on the development of metacognitive or learning to learn abilities. This was shown to be true no matter what level (primary school to university) or subject (language, science, or mathematics) was involved in the approach. In fact, many authors maintain that learning to learn abilities proved to be essential to the improvement of learning performances (Bruner, 1983) and lifelong learning (Conseil supérieur de l'éducation, 1993).

On the other hand, E-mail allows asynchronous exchanges. It also permits one-to-one as well as one-to-many communication. Of these two, teachers should take advantage of one-to-one communication because it makes up for the lack of student-teacher interpersonal communication, inevitable in the classroom context. This type of communication seems particularly appropriate to provide individual support to students.

One of the pedagogical approaches has both characteristics: a metacognitive[2] aim and an emphasis on interpersonal communication. Harri-Augstein and Thomas (1991) developed a learning conversation approach in order to help people become self-organized learners, that is to say, develop autonomy. This learner's autonomy develops as he learns to observe himself during the learning process. The authors of this approach emphasize that such learning can only be done with the support of a tutor. In their point of view, the conversation with a more experienced learner, referred to as "tutor", is essential to the development of the learner's awareness of his own process of learning.

Purpose

The purpose of the following study is twofold: First, to describe the use of a learning conversation approach integrating E-mail; second, to analyze the evolution of the learning conversation among students.

Conceptual Framework

The eclectic approach developed by Harri-Augstein and Thomas (1991) is referred to as the Self-Organised Learning Approach (SOL). Harri-Augstein and Thomas distinguish three levels of conversation, describe the dialogues a learning conversation should consist of, and propose tools (e.g. Figure 1).

Levels of interaction

The interaction can be located at three different levels: "Tutorial", "Metacognitive", and "Life". At the Tutorial level, both learner and tutor talk about the learning objectives in order to develop a common language to discuss learning, and to enable the learner to obtain insights about his learning process. After some learning experiments, with the tutor's support, the learner gradually increases his awareness of his own learning process. At this level, Metacognitive, the learner's work is aimed at investigating his learning process. At any time, realizing that the learner is facing some difficulties, the tutor may lead the learner to reflect upon his motivation: What does this learning mean for him? It is the main question addressed at the Life level, allowing the learner to relate what he is learning to his own life.

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[2] Instead of the phrase « learning to learn » used by Harry-Augstein and Thomas, we prefer the term « metacognitive », because of the more specific definition of the latter.

Types of dialogue

Harri-Augstein and Thomas point out that a learning conversation should comprise three types of dialogues : the process, the support, and the referent dialogues. The process dialogue is aimed at helping the learner to achieve greater awareness of his own learning process. The support dialogue is aimed at reducing anxiety during the learning process. Then, the emphasis is placed on the affective aspect of the learning. The referent dialogue prompts the learner to evaluate himself according to his own criteria. To do so, he must identify relevant types of referents which can be used as a basis for comparison.

Insert Figure 1 about here

Learning Tools

Harri-Augstein and Thomas suggest two sorts of tools. Some are used in order to support the learner in the supervision of his learning process: this is the Personal Learning Contract (PLC). Qualified by the phrase "all-purpose vehicle", it permits the learner to identify learning purpose, strategies, and outcomes.

Other tools are aimed at enhancing the learner's awareness of his own learning process: 1) any tool which enables the learner to observe himself; 2) the MA(R)4S; and 3) the Repertory grid (REP). 1) During the learning process, depending on the type of learning, tools which are likely to help the learner are the tape recorder, VCR, or any device recording the learner's behavior, a journal, or even an observer. 2)The MA(R)4S is a seven-step conversational device which leads the learner to become aware of his learning process. It stands for Monitor, Analyze, Record, Reconstruct, Reflect, Review, and Spiral. 3) The REP is a reflective learning technology which allows learners to represent their own personal meanings on a specific topic in a way that facilitates reflection, review, and development.

Method

Context

The study was conducted at the college level in the province of Quebec. There, for the last decade, teachers have been invited to implement new strategies to increase students' performance and consequently, to reduce failure and drop out rates. One specific aspect has been pointed out:

that is students' supervision or support. For this reason, the strategy developed is aimed at providing support beyond regular lectures, that is to say to help students, by providing extra explanations, information, and answering questions.

The support strategy was experimented within a 45 hour-course on Computer-assisted drawing (CAD), selected because it is the normal teaching task of the second author of this paper. This course, which is part of a technical program, is spread out over 15 weeks.

Participants

Among the 60 students who were enrolled in this course, 57 students volunteered to participate in the study, that is to say they permitted the researcher to use their data for research purposes. In accordance with a rule of the College, all students must receive the same teaching. For this reason, three groups of students took advantage of the support strategy.

Support Strategy

The support strategy integrates E-mail and the SOL approach. Among the tools suggested by Harri-Augstein and Thomas (1991), the PLC, the journal, and the MA(R)4S were used. The REP was not retained because it was considered too time-consuming for students who already had a heavy work-load.

The PLC consisted of four questions. Three concerned purpose, strategies, and outcomes and one led the learner to talk about his motivation for this purpose. During the term, students completed two PLCs aimed at learning any subject-matter of interest to them.

The journal comprised four questions, one on each of the following: 1) the topic they were studying; 2) what they learned about themselves or others as learners; 3) learning strategies used or discovered; 4) the general evaluation of their learning experience. The journal was filled out once a week. Even though the journal is usually employed as a static means of communication, in the present study, it was used according to Ménard's (1996) suggestions in order to initiate teacher-student interactions.

The MA(R)4S consisted of seven questions which refer to the seven steps of the conversational device mentioned above.

All these tools were developed as electronic forms and E-mailed to students. Students filled them out and sent them back to the teacher. At any time, students could ask questions or send comments by E-mail.

This support strategy had been experimented the semester preceding the experimental term. It permits the researcher, who was also the teacher[3], to perfect her use of the SOL approach, and to experiment the electronic forms developed.

Data Collection

Data from E-mailed messages and journals were collected and saved systematically as they were received by the teacher-researcher. They are seen as the most representative of the student-teacher exchanges.

Table 1 shows the number of E-mailed messages and journals for P1, 583 and 177, and for P3, 422, 180 (e.g. next section for the meaning of P1 and P3).

Insert Table 1 about here

Data Analysis

Data were analyzed by means of content analysis. Each message was divided into semantical units (e.g. italic numbers in Table 1: 4538 units taken from the E-mailed messages and 1669, from the journals). Based on the Harri-Augstein and Thomas approach, the category system is made up of three categories established in accordance with the three levels of interaction: Life, Tutorial, and Metacognitive. The latter two each have three sub-categories, identified in accordance with the types of dialogue: process, support, and referent.

In order to analyze the evolution of the conversation, the term was divided into three periods of 6 weeks each. Then, periods 1 and 3 were compared (P1-P3).

Twenty-nine per cent of the data were double-coded using software for qualitative data analysis (Nud*ist). The reliability coefficient is 83%.

Results

We describe the use of a learning conversation approach as shown, first, by E-mailed messages, and, second, by journals. For each category of documents, we analyze the evolution of the learning conversation among students.

[3] The second author of this paper.

Insert Figure 2 about here

E-mailed messages

The analysis of the E-mailed messages indicates that during the two periods (P1 and P3), most of the semantical units were not in relation with the SOL; that is to say they concerned the communication per se or topics which were not related to the course (e.g. Figure 2). Among the SOL exchanges (SOL exchanges = 100%), for the two periods (e.g. Figure 3), most of the semantical units concerned the Tutorial level (P1: 54% and P3: 57%). At the Metacognitive level, during both periods, there are 39% of the semantical units. Students talked about their motivation: 7% and 4% of the units are at the Life level. At period 1 as well as at period 3, 37% and 30% of the semantical units were aimed at the learning in progress (at Tutorial level). Referent semantical units appeared in quite the same proportions for the two periods (P1: 6% and P3: 5%) while the support units doubled from period 1 to 3: 11% to 22%. At the Metacognitive level, quite the same tendency can be noted. Semantical units on the learning process decreased slightly (36% to 34%) while the proportion of referent and support units remained quite the same: 1% and 2% (referent) and 2% and 3% (support).

Insert Figure 3 about here

On the one hand, in accordance with the results presented above, the first point of note is the following: students communicated at the Metacognitive level as well as at the Tutorial level, and they maintained exchanges at those two levels. On the other hand, results show two important differences between periods 1 and 3: an increase in the non-SOL semantical units. Regarding SOL semantical units only, support units at Tutorial level increased from period 1 to period 3 (11% to 22%).

Journals

Contrary to results presented above regarding E-mailed messages, Figure 4 shows that during the two periods (P1 and P3), most of the semantical units contained in journals were in relation with the SOL: 92% and 89%. Among the SOL exchanges (SOL exchanges = 100%), for the two periods (e.g. Figure 5), most semantical units concerned Tutorial level (P1: 56% and P3: 53,8%). Metacognitive brought together at periods 1, 42% of the semantical units, and at period 3, 43,3% of them. Students talked about their motivation: 2% (P1) and 3% (P3) of the units are at

the Life level. Compared to results related to E-mailed messages, journal entries are quite similar. Most of the semantical units concerned the learning process at the Tutorial level (P1: 53% and P3: 51%). Referent and support semantical units appeared in the same proportions for the two periods: referent, 2% and 2% for P1 and P3 and support, 1% and 0,8%. At the Metacognitive level, semantical units on the learning process increased slightly (40% to 42%) while the proportion of referent and support remained quite the same: 1% and 1% (referent) and 1% and 0,3% (support).

Insert Figures 4 and 5 about here

The comparison of results of the two periods indicates no difference. The proportions of units at each level or for each category are quite similar.

Discussion

The analysis presented above points out that students had exchanges at the Metacognitive level by means of both E-mail and journals. The proportion of units at this level from E-mailed messages is higher for P1 (i.e. at the beginning of the term). Journals led students to send messages more oriented towards the Metacognitive level: the proportion is still quite the same throughout the term.

Many teachers deplore the difficulties students face when they want to reflect upon and talk about their own learning process. The present study shows that it is possible to incite metacognitive exchanges and to maintain them at least over a term. As Harri-Augstein and Thomas (1991) put it, many learning experiences conducted by means of many Personal Learning Contracts are necessary to permit individuals' development of the ability to reflect upon their own learning process. The support strategy employed during many terms should lead students to observe themselves during many learning experiences; such an experience could permit researchers to investigate if and how metacognitive abilities develop.

In the support strategy experimented, E-mail was not used in a structured way; students chose the content, the length, and the form of the message. The students' enthusiasm for E-mail, which was new for a majority of them, and the heavy work-load at the end of the term (many exams to prepare) could explain the important difference between P1 and P3 numbers of messages. Actually, at the end of the term, messages were very few, shorter, and sometimes absent: students sent attached files without any messages.

The journal, however, was more formal: students had to answer to a fixed set of questions aimed to guide their reflection about their learning process. The way students used it during the term indicates that it is a tool which is complementary to the unstructured use of E-mail. Even though journals were structured, they permitted students to express themselves freely, as shown by the presence of non-SOL exchanges. This is perhaps due to the fact that students knew that they would receive feedback.

The proportion of units at different levels and of the different categories is still quite the same all through the term. However, Tutorial support units doubled from period 1 to period 3. We hypothesize that, during the term, students realized that E-mail was an effective way to obtain some help. In class, students often do not feel at ease to ask questions when they do not understand and they need help. For this reason, a support strategy integrating E-mail appears to be a promising tool.

Some students' comments indicate that their involvement in the project provoked extra work, which led some of them to a saturation point. Considering the need for long term implementation of such a strategy and the overload mentioned earlier, a longitudinal study should investigate the implementation of a lighter version of the strategy (e.g. one PLC per term). Further research should analyze the impact of this strategy on the development of metacognitive abilities and performance.

Theoretical and educational significance of the study

The present study puts emphasis on the pedagogical aspect of the use of CMC, an aspect which is often neglected. It provides information about the integration of a device, E-mail, and a learning conversation approach which is aimed at a particular educational purpose: supporting college students who attended regular lectures. Few studies on CMC have been concerned with this specific use. Moreover, the ecological validity of the present study is likely to benefit teachers interested in the use of E-mail for educational purposes.

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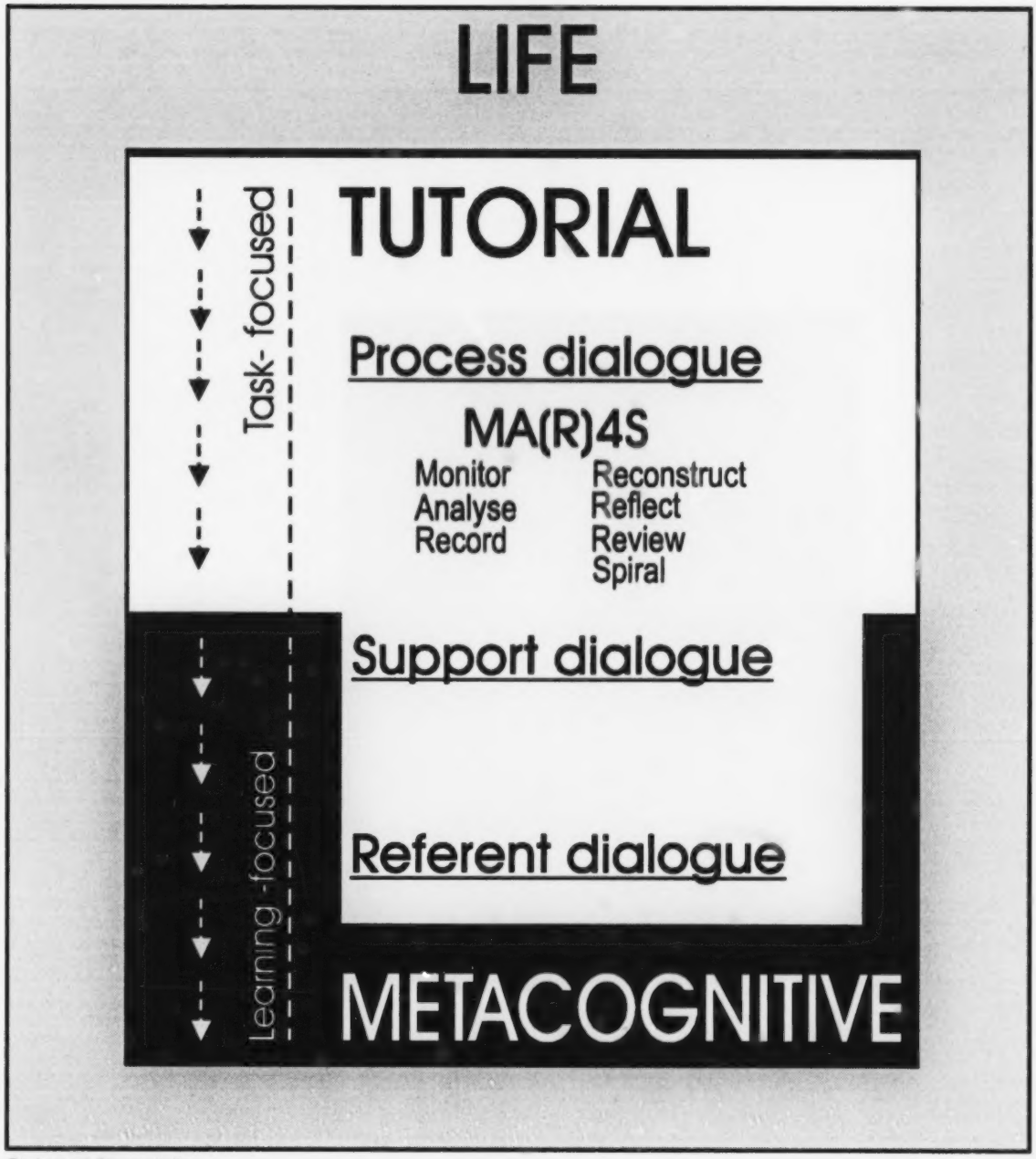

Richer et Deaudelin
In Deaudelin and Dussault, 1999

Figure 1 Levels of interaction and types of dialogue of SOL approach

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Table 1 Distribution of the documents among the two periods

	P1	P3	TOTAL
E-MAIL MESSAGES	583 *(2948)*	422 *(1590)*	**1005** *(4538)*
JOURNALS	177 *(838)*	180 *(831)*	**357** *(1669)*
	760 *(3786)*	602 *(2421)*	1362*(6207)*

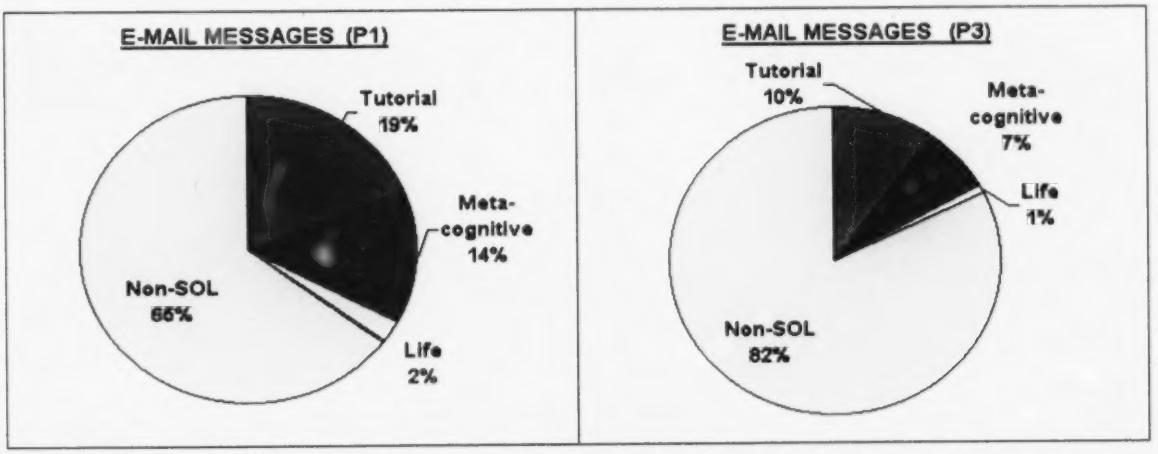

Figure 2 Distribution of semantical units from E-mail among SOL and non-SOL categories

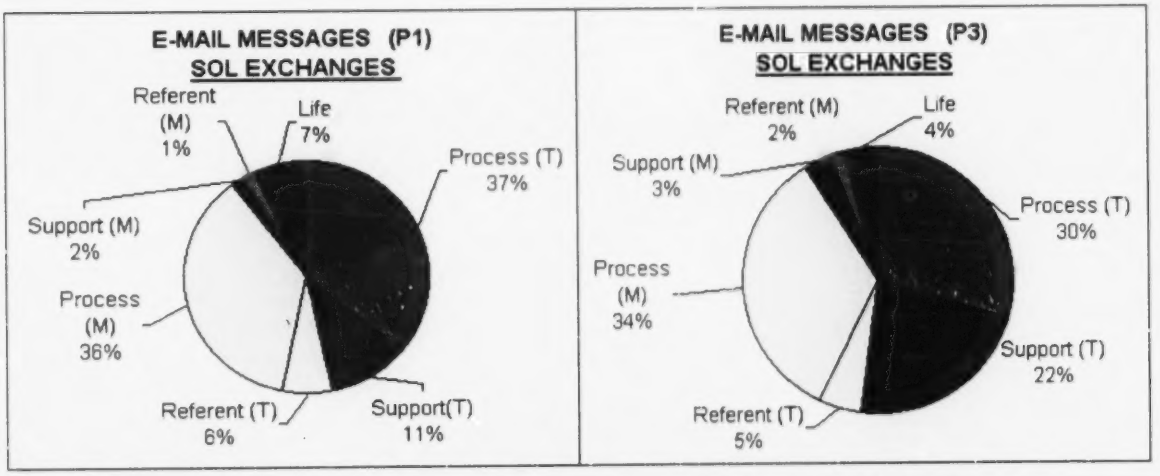

Figure 3 Distribution of semantical units from E-mail among SOL categories

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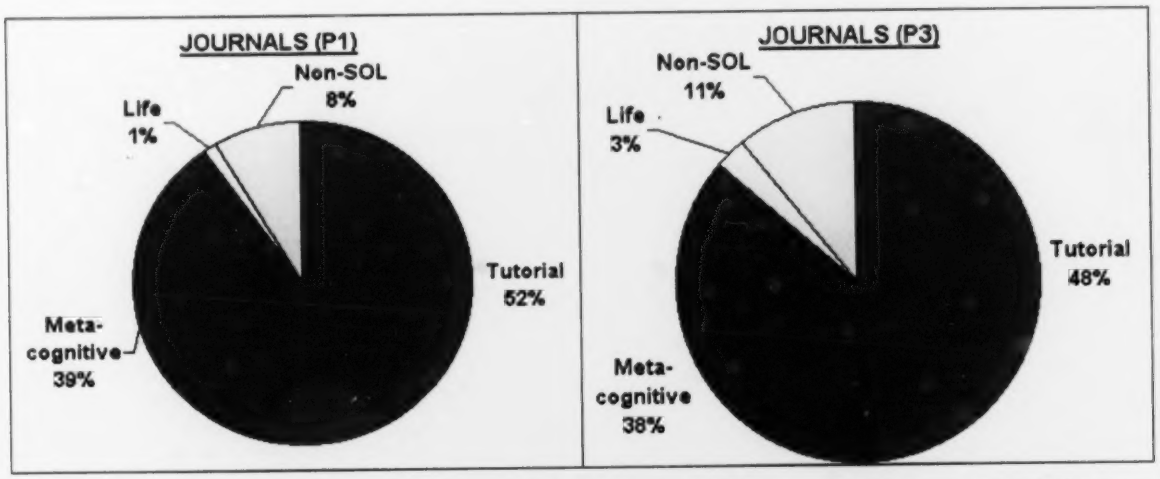

Figure 4 Distribution of journals' semantical units among SOL and non-SOL categories

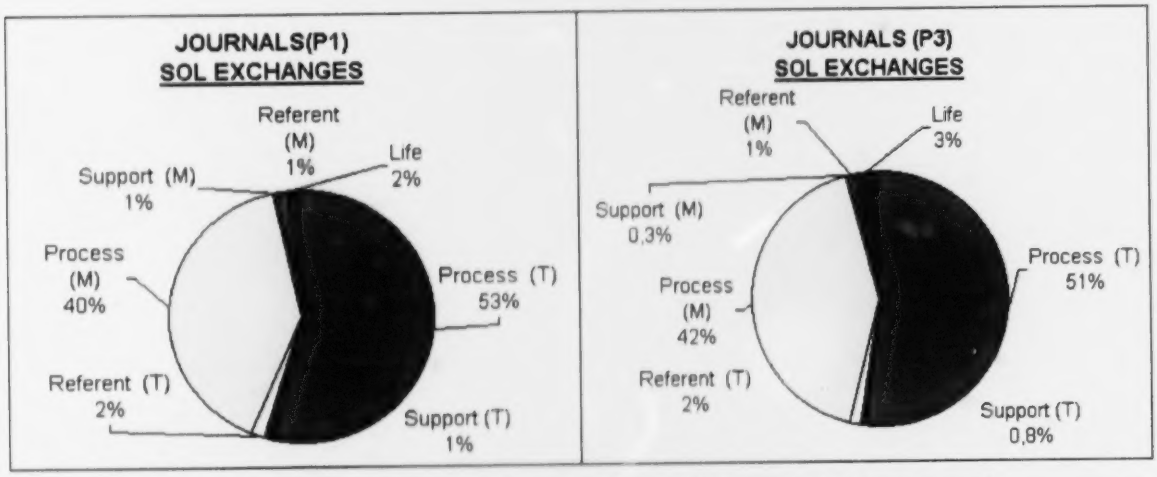

Figure 5 Distribution of journals' semantical units among SOL categories

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